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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,687	04/14/2004	Joseph W. Tsang	200316003-1	8068

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/824,687

Applicant(s)

TSANG ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-44 is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji et al. (U.S. 6,087,051) in view of Yacobucci et al. '858 (U.S. 6,312,858) and Thompson et al. (U.S. 6,341,856).

The rejection is adequately set forth in paragraph 3 of the office action mailed 8/28/06 and is incorporated here by reference.

3. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji et al. in view of Yacobucci et al. '858 and Thompson et al. as applied to claims 1 and 5-7 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

The rejection is adequately set forth in paragraph 4 of the office action mailed 8/28/06 and is incorporated here by reference.

4. Claims 1, 5-8, 12-16, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji et al. (U.S. 6,087,051) in view of Yacobucci et al. '858 (U.S. 6,312,858) and Thompson et al. (U.S. 6,341,856).

The rejection is adequately set forth in paragraph 5 of the office action mailed 8/28/06 and is incorporated here by reference.

5. Claims 2-4, 9-11, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji et al. in view of Yacobucci et al. '858 and Thompson et al. as applied to claims 1, 5-8, 12-16, and 20-22 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

The rejection is adequately set forth in paragraph 6 of the office action mailed 8/28/06 and is incorporated here by reference.

6. Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yacobucci et al. '858 (U.S. 6,312,858) in view of Yacobucci et al. '101 (U.S. 6,268,101).

The rejection is adequately set forth in paragraph 7 of the office action mailed 8/28/06 and is incorporated here by reference.

7. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yacobucci et al. '858 in view of Yacobucci et al. '101 as applied to claims 1 and 5-7 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

The rejection is adequately set forth in paragraph 8 of the office action mailed 8/28/06 and is incorporated here by reference.

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8. Claims 1, 5-8, 12-14, 16, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yacobucci et al. '858 (U.S. 6,312,858) in view of Yacobucci et al. '101 (U.S. 6,268,101) and Thompson et al. (U.S. 6,341,856).

The rejection is adequately set forth in paragraph 9 of the office action mailed 8/28/06 and is incorporated here by reference.

9. Claims 2-4, 9-11, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yacobucci et al. '858 in view of Yacobucci et al. '101 and Thompson et al. as applied to claims 1, 5-8, 12-14, 16, and 20-22 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

The rejection is adequately set forth in paragraph 10 of the office action mailed 8/28/06 and is incorporated here by reference.

Response to Arguments

10. Applicants' arguments filed 12/21/06 have been fully considered but they are not persuasive.

In the office action mailed 8/28/06, the examiner argued that while there was no disclosure in Shoji et al. or Yacobucci et al. '858 of two-part system as presently claimed, Shoji et al. and Yacobucci et al. '858 were each relevant references against present claims 1 and 5-7 given that these claims are directed to a fixative and further given that the claimed fixative is the same as the fixative of Shoji et al. or Yacobucci et al. '858 once the isocyanate and polyol are reacted on the printing medium, that is, after reaction the claimed fixative comprises

polyurethane. It was the examiner's position that it was not seen as to how the process of forming the fixative by separately combining the ingredients via a reaction between isocyanate and polyol (two-part system) would lead to the fixative as being patentable over the same fixative formed by directly depositing the polymer into the printing medium (one-part system) and that there is no evidence to indicate any criticality of the two-part system over the one-part system.

Applicants argue that Table IV of the present specification shows improved results of the two-part system compared to the one-part system.

It is noted that Table IV compares one-part fixative system comprising poly(styrene-allyl alcohol) with two-part systems as presently claimed. It is shown that the two-part system is superior in terms of optical density, waterfastness, and/or alkaline smearfastness.

However, it is the examiner's position that the data is not persuasive given that there is not proper side-by-side comparison between the one-part system and the two-part system and further given that the data is not commensurate in scope with the scope of the "closest" prior art namely Shoji et al. or Yacobucci et al. '858.

Specifically, there is not proper side-by-side comparison given that the one-part system comprises poly(styrene-allyl alcohol) while the two-part system comprises diisocyanate and polyol which would form polyurethane. Thus, it is not clear if the differences between the one-part system and two-part system are due to the different polymers utilized or to using the one-part system as compared to using the two-part system. Further, the data is not commensurate in scope with the scope of the prior art given that Shoji et al. and Yacobucci et al. '858 are each closer to the presently claimed invention than the comparative example given that Shoji et al. and

Yacobucci et al. '858 each disclose the use of polyurethane. There is no disclosure in either reference of poly(styrene-allyl alcohol). Thus, the comparative data of the one-part system is not only outside the scope of the present claims but also outside the scope of Shoji et al. or Yacobucci et al. '858. The comparative data set forth in the present specification does not compare the presently claimed two-part system that would form polyurethane with the "closest" prior art, namely, Shoji et al. or Yacobucci et al. '858, that each disclose one-part system comprising polyurethane.

Applicants argue that Shoji et al. disclose hydrophilic polymer not hydrophobic polymer as presently claimed.

However, applicants' attention is drawn to col.15, lines 46-47 and 55-57 that disclose that in one embodiment, Shoji et al. do utilize hydrophobic polyurethane.

Applicants also argue that Yacobucci et al. '858 disclose the use of polycarbonate-containing polyurethane which is hydrophilic and do not disclose hydrophobic polymer as presently claimed.

However, while applicants argue that polycarbonate-containing polyurethane of Yacobucci et al. '858 is hydrophilic, there is no evidence to support such position. Attention is drawn to col.6, lines 6 and 9 of Yacobucci et al. '858 that discloses that polyurethane and polycarbonate are each hydrophobic polymers. Thus, it is not clear why applicants' argue that polycarbonate-containing polyurethane is hydrophilic. Clarification is requested.

With respect to the rejections of present claims 1, 5-8, 12-16, and 20-22 by Shoji et al. in view of Yacobucci et al. '858 and Thompson et al. and claims 1, 5-8, 12-14, 16, and 20-22 by

Yacobucci et al. '858 in view of in view of Yacobucci et al. '101 and Thompson et al., applicants argue that the examiner has not provided motivation as to why one skilled in the art would modify the teachings of Shoji et al. or Yacobucci et al. '858 that disclose hydrophilic one-part polyurethane to arrive at applicants hydrophobic polyurethane two-part system.

However, as set forth above, it is the examiner's position that both Shoji et al. and Yacobucci et al. '858 disclose hydrophobic polyurethane as presently claimed.

Further, while it is agreed that there is no disclosure in Shoji et al. or Yacobucci et al. '858 of two-part system, that is why each is combined with Thompson et al.

It is noted that the present claims require a fixative, method for printing, and combination each comprising two-part fixative that comprises a reactive monomer such as isocyanate and second component such as polyol wherein the reactive monomer and second component react to form a polymer on the printing medium while Shoji et al. and Yacobucci et al. '858 each disclose fixative, method for printing, and combination each comprising fixative comprising polyurethane.

Thompson et al. disclose reacting 2-40% polyisocyanate with polyol and further disclose storing polyol and polyisocyanate in separate reservoirs, i.e. cartridges, in order to prevent premature reaction between the two components (col.5, lines 61-62 and col.6, lines 18-20). It would have been within the skill level of one of ordinary skill in the art to recognize that such premature reaction would result in formation of undesirably high molecular weight or highly crosslinked polymer before printing wherein such polymer would clog the printer nozzles.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to form the fixative disclosed in Shoji et al. or Yacobucci et al. '858 by a two-part system

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wherein polyol and polyisocyanate are kept in separate reservoirs and react on the printing medium to form the polyurethane in order to prevent premature reaction in order that the ink is ejected from printer nozzle properly, and thereby arrive at the claimed invention.

Applicants argue that none of Shoji et al., Yacobucci et al. '858, or Takahashi et al. discloses specific limitations of present claims 8 and 12-15 regarding printing first reactive composition and second reactive composition through separate print heads.

However, it is noted that Thompson et al. disclose storing polyol and polyisocyanate in separate reservoirs (col.6, lines 15-20).

Applicants' argue that Yacobucci et al. '101 requires forming the polyurethane in gelatin and subsequently heat fusing the mixture both of which would appear to be excluded by language of the present claims.

However, it is noted that Yacobucci et al. '101 is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely specific melting temperature of polycarbonate-containing polyurethane disclosed by Yacobucci et al. '858, and in combination with the primary reference, discloses the presently claimed invention.

Applicants argue that Thompson et al. teach heat fusing step that is not required in the present claims and that the required condition to remove protecting groups is about 175 to 220 C which can readily damage substrate.

However, there is nothing in the present claims that excludes a heat fusing step. Further, as set forth above, Thompson et al. is utilized as a teaching reference for its disclosure of reacting 2-40% polyisocyanate with polyol and further disclose storing polyol and polyisocyanate in separate reservoirs, i.e. cartridges, in order to prevent premature reaction between the two components

Further, while it is agreed that Thompson et al. disclose that the temperature required to remove protecting agents is 175 to 220 C, it is noted that Thompson et al. disclose either utilizing chemical blocking agents or storing polyol and polyisocyanate in separate reservoirs to prevent premature reaction between polyisocyanate and polyol. Thus, when utilizing the second embodiment, it is clear that the removal of protecting agents is not required.

Allowable Subject Matter

11. Claims 23-44 are allowable over the "closest" prior art Shoji et al. (U.S. 6,087,051), Yacobucci et al. '858 (U.S. 6,312,858) and Thompson et al. (U.S. 6,341,856) given that there is no disclosure or suggestion in any of the references of fixative comprising a two-part system consisting essentially of at least one reactive oligomer comprising at least one epoxy-terminated oligomer and at least one second component comprising at least one polyol plus at least one basic catalyst as required in present claims 23-29, no disclosure or suggestion of method of printing on a print medium including printing ink onto medium followed by depositing the

fixative on the ink the method comprising providing first container containing at least one first reactive component comprising at least one epoxy-terminated oligomer as required in present claims 30-37 and no disclosure or suggestion of combination of ink jet ink and two-part fixative including at least one reactive oligomer comprising at least one epoxy-terminated oligomer and at least one second component comprising at least one polyol plus at least one basic catalyst as required in present claims 38-44.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

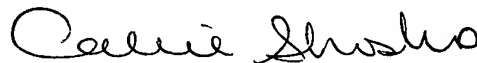
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
3/31/07